Clostridium :- {Strict anaerobic} organisms

how differ from facultative anaerobic → by enzymes.

1) Catalase 2) Super oxide dismutase
3) peroxidase (4)

$H_2O_2 \rightarrow H + O_2$

Break down. H_2O_2 into H_2O & O_2.

toxic O_2 → molecular non-toxic O_2.

due to metabolic activity, respiration, division, toxic subs. are formed toxic O_2 & H_2O_2.

Strict anaerobic organ. if will lived in O_2 env. they will die.

facultative anaerobic & aerobic → 99%.
anaerobic → 2/1 %.

((Acantamoeba, Naegleria fleri (CNS amoeba)
promastigote forms of Leishmania — CSF specimen.
Clenoumi → culture in 3N media.

[Lysteria monocytogenes
neonatal sepsis, meningitis.

very rare. Anaerobic — the most fatal among all bact. food borne disease
bacteroids → Abscess from teeth obstruction.
((Peptostreptococci)) ← only this could be found up to now

- Clostridium perfringens → causes (gas gangrene (myonecrosis))
- Clost. tetani → tetanus
- Clost. botulinum → (botulism)) food poising.
highly form of toxication of food

Clostridium plotobinum exotoxin → The highest fetal

(all of them are gram(+) Bacilli))

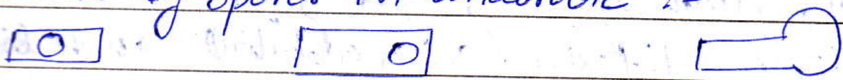
C difficilli → organism causing severe fetal accute pseudomembranous collitis with diarr & death of patient due to giving patient long term antibiotics killing the faculta anaerobes in gastrointestinal tract, anaer bacteroids are most found in intestine 90% but aerobic only 20%, less than 1% E.coli diphtheroids, clostridia. these facultative ana. were preventing the Clost dificilli from it's pathogenic effect, after killing them → C.difficilli pseudomemb. collitis.

- Bacillus Anthracis → Strict aerobic spore for
- C. Tetani, C. perfringens, C. botulinum, C.dif

Strict non-aerobic → Spore forming bacteria, only other non-spore forming.

The only sterlization method from these bact → ((Autoclaving)), fire will kill them.
((121 °C, in autoclave.
2 Atmospheric pressure, steam, timing 60 min.))

3 positions of spores in anaerobic :-



1) Central → Bacillus Anthracis
2) Sub terminal
3) Terminal & projecting. C. Tetani.

Nail should be thrown in soil for long time → Rust forming, ~~penetration of stoo~~ precipitation of Stool of sheeps on the nail. was infecting. clostridium from Tetani spores.

One of chance of Tetanus & gas gangrene → require a very deep wounds
1) fire works,
2) car accidents wounds
3) gun shoot wounds.
4) Dogs & cat bite

No laboratory tests of C. tetani.
exotoxin of.

C. tetani. tetanus plasmin enters → inhibitory transmitter release is blocked, → continous spasm

Specimen → wound, ⓑ
in wound → spores forms in anaerobic cond. + Stept.
Strept. ... other pyogenic infection + anaerobic cond. → {transform the spores form into vegetative active form which secreates plasmin} acting on nerve endings
tetanus

Inhibitory trans. released blocked (mediator) → glycin was blocked.

Culturing the (Exotoxin) by injecting it into white rat.
from serum of patient

Spasm & death of rat, injecting other rat with (not toxoid) antitetanus antitoxin (gama globulin) → protection.
injecting it then to the patient, if patient doesn't die means → C. tetani tetanus plasmin in serum of the patient of exotoxin.
+ antitetanus antitoxin (γ globulin)
neutralization.

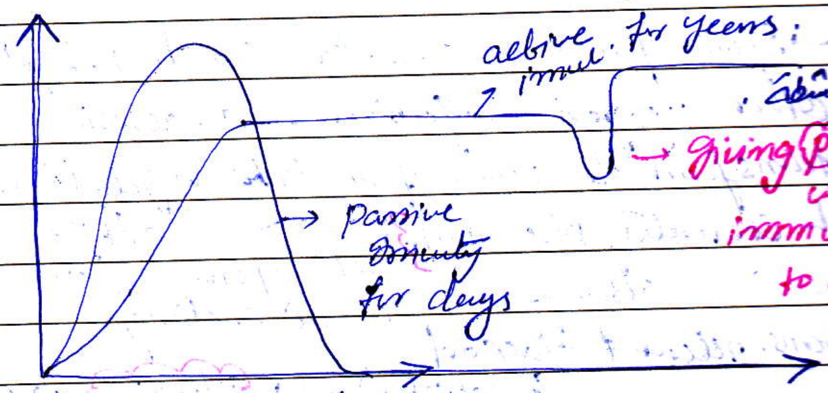
Lab. diag. require :-
1) Laboratory animal.
2) Animal house.

, but no isolation from, a... because toxins can't be cultured

Staph. Aur, Coronie bact diphteri, C. tetanus

Tetanus (toxoids) producing antibodies very very slow
at the same time give anti tetanus gama glob (human)
neutralize ← antibodies

—x —x —x —



giving patient 2 type of immunity :-

① passive immunity by giving reedimate, antitetanus (human gama globulin)). after some time will finish.

② Active immunity by injecting ~~tet.~~ toxoids → antibodies will produce very slowly but highly specific.

before were giving gama glob. from horse origin → Anaphylactic shock & death → due to → ATS, ATD

antitetanus ~~antitox~~ serum after test dose.

Tetanus toxoids in one hip & human γ glob. to other hip to prevent neutralization.

{ Steph. Aur., Strep. pyo., C. botulinum, E. faecalis, E. coli, Corinibacterium diphtherie, } very offensive smell wound. ((wound forming bacteria)).

C. tetani → not pyogenic. wounds.

⊕ Clinical Use of C. botulinum Exotoxin:-

① In small doses it can treat Conjenital defect (Torticolis) ⊕ by relaxing the muscles with very small micro grams

② Removing wrinkles in the centre of forehead. ((frown wrinkles) ⊕

↓

very Imp. for cosmetic use.

③ Treating, relieving the spasm of eyelids (blepharospasm) → continous closing of e

(*)

* difficult to isolate it from food.— removal of.

+ control — control

8 laboratory mice. but C. tetani only 1 because one (serotype.)

↓

+ 2 extra mice → + control → the contaminated food. death.

↘ − control → anti C. bot antitoxin poly valent + contaminated food. → no death.

1 → C. bol. monovalent (A) antitoxin + cont. food (death)

2 → C. bol. mono.val. (B) antitoxin + cont. food.

↓

if no death means → C. bullon. serotype ((Toxin - antitoxin neut. reaction))

but the remaining all death. only those of B, polyvalent alive → ((like this diagnosis occurs.

C. botulinum polyvaccine → for all types.

Rabbise human γ glubolin → prepared to human (H.D.C) diploid cell vaccine against rabbise virus.

↓ against dog's bite.

(*)

↓ Avirulent virus

All spore forming bact → gram(+) bacilli.
G(-) comma shaped bacilli → pathogenic or non-path.
↓
Vibrios (Vibro cholera)).

{highly resistant spore forming to years → Bacillus Anthracis}).

Every bacillus → position of spores. (Imp)).

⊛ C. perfringes → Gas gangrene, by C. per. (A) type
or myonecrosis ((necrosis of muscles)) heat sensitive spores ~~form~~

Spore form in soil by mouths animals stool → introduced in wounds by earth quakes, gun dogs bite... converted to vegetative form.. active motile in anaerobic conditions → more than 12 ex toxins. & exoenzymes

Gas gangrene is clinically diagnosed → (By clinical picture). + amputation. bad smell full of gases leg.
↓
very deep wounds.

Bacillus Anthracis → gama hemolysis. (No)
↓
{gama phage, test (+) → B. anthracis sensitivity} isolated but even if all are in favour of B.A. if ⊖ means not B. anth

C. per. → double zone of hemolysis - 12 enzy

~~Lecithinase~~

Agar Agar + egg's yolk → Nagler medium

(A) + B → no agglutination → no neutralization for toxin → breaking down of lipid material of yolk, spread around colonies shining part

2ml of α antitoxin ↙ but during 24 hours neutralization of toxin.

1) Anaerobic growth (growth in Mac.)
2) Litmus milk ferment (+) Storm like.
3) Nagler react (+)
4) pencillin sensitive.

Note:- C. difficilli called so → because difficult to cultivate.

37°C normal growth of all bacteria..

—— x —— x —— x ——

Seminar :- "Clostridium"

— x — x — x —

predesposing factors for Sporulation :-

1- Oxygen tension.
2- High temperature.
3- decrease moisture.
4- depletion of minerals, K, Na..
5- Acidic environment.

after germination converted to cell wall

peptidoglycan cover protoplast

properties of Spores ((content)) → (1) Core (2) Spore wall (3) Cortex (4) Coat

Creatine subst.

Cortex → unusual peptidoglycan. very sensitive to lysis.

Protoplasm save the nucleic content & chromosomes of bact.

that save the spore from Antibacterials.

C. Tetani profylaxis → ((toxoids))

Syphlis :- Chronic infection in VDRL → false (+) reaction
for. eg. - pregnant women.

→ Old persons :- (lipid materials precipitation which cause VDRL (+), without having syphilis

But clinical picture + history → at begining.
but after 4-8

* dark feild microscopy for Ulcer secretions → procedures.

FTA → Flourocene treponema Abs Antibody.
Immuno florocent anti bodies IgM - IgG in serum
Absorption of non-pathogenic by Reiter's strain

(Necolar Strain) → for antigens
Killed treponema. from testis of the rabbit
(treponema pallida subspecies) → even before appearance of Ulcer (+)

dark feild microscopy → alive
Immuno florocent → killed bacteria.

Treponema pali → In mercury solution Killed.

taking a drop from Necolar & drop from Serum of patient under dark field → nomov.

T.p. Immobilization reaction.

Treponemal Tests for syphilis → 1) (highly confirmatory)
2) Immuno flouro cent

Non-treponemal test → (non-specific).

* all the bacteria that are sensitive to penicillin

Imp:

fungal meningitis → caused by fungi
normal CSF → 250 - 750 ml. → density amount
2 bottles 1 for bacteriology
1 for hematology & Biochem

urgent latex
straight reader
from the supernatant.

no. of cell cells & diff. cells.

viral meningitis
T.B mening.
Bact meni.

from deposit → 3) culture into mukongi agar
1) wet preparation for fungi. chocolate "
Blood "

2) preparation for neglar fleri CNS amoeba
Seen under phase contrast microscopy.
differ → Leishman stain or gamma stain

No sensitivity test to N. meningitidis, S. pneumo
Hemophilus emph...
because all of them

الجرعة وارش السبب

(Rifampicin) → chemo prophylaxis Kills naso pharyng.
↓ carrier state
because remain for long time trapped in Saliva while penicillin can't be trapped in Saliva.
prophylaxis of N. mening. → (very imp.)

How many phages do you know? → imp
26 phages → 23 of staphylococ
cholera phage.
AL-TOR phage
gamma - phage

"Syphilis" (1)

Syphilis :- Trichomonas Vaginalis mean Syphilis, Gonorrhea & AIDS.

Blood must be examined by doing serological test for any trans. blood bag.

Malaria, syphilis, hep. B, hep C & AIDS → transmitted by blood.

Before man didn't know pathological effect of Treponema pallidum. they introduced distill water to know the stages of Syph in black people in TUSKI. Scandal.

Morphology :- Spirochetes, can't be stained by ordinary stains. like :- Clamidium.
can be only seen by dark feild microscopy, can't be cultivated on any media.

Reither Strain → can be grown in non-pathl. non human media.

Treponema pallidum subspecies pallidum → only this pathogenic

Blood bag → VDRL if (+) not use it.
Keeping bag in refrigerator for 2 days → death of T. pall. under 4°C

Pure human infection like → menig. & gonorrhea.

95% sexually, 5% extragenitally. drinking from infected cup, infected blood bag transmission, accidental .. by kissing..
Intrauterine infection, but Neis. by birth can

primary shanker → primary syphilitic ulcer.
the non-path. grow on Reither strain.

Trep. pallidum grows, cultivated only in the testes of rapid.

Nickoles strain → after injecting T.p' strains into rabbit's testes, used as tests in → (by intracardiac puncture)
① T.p immobi... reactio...
& ② T.p immuno flor... reaction

immuno
flourecent T.p antibody reaction Abs.– (absorped)
they treat the patients serum with Reither strain to absorbes all the antibodies against the 32 species of Trepenema (non-pathogenic) to avoid the [...] against non path. & only specific antibod. against T.p. subsp. pallidum is remained.
also used in immobilization.

Reither strain → non-pathogenic T.p. strain.

T.p ③

Immobilizating antibody → Stop moving of T.p if he had syphilis.

One drop of Nich. strain from rabbits' testis & drop from patients serum if stop mov. of Nich. strain means (+) test.
patients serum before were injected with Reiter strain to absorp all the non-specific antibodies only remaining → 1) T.p immobiling antibod
highly confirmatory ← 2) T.p immunoflurent antibodies.
Test for T.p.
3) Reagins antibodies

* Standard Serological Test for syphilis (SSTS) (non-treponemal Test)) non specific :-
means not using treponema antigen, but using cardiolipid antigen of Oxe because in syphilitic patient lipid materials are formed which it's antigenic structure is similar to that lipid formed in heart of Oxe.

Reagins antibod. produced / not against T.p. inside pat serum produced against the oxe lipid. (cardiolipid A). because
Non-Specific Test :- ① VDRL ② RPR ③ Weitlerman's ③ Carr's reaction.
but we can rely on them as formaldehyde Test.

يَبْرَى الكحامِل .

because History + Clinical picture & Epidemi[ology] + VDRL (+) → Syphilitic patient.

Clinical picture → Ulcer :- Round, red, painless & har[d] like a butto[n]

T.p
1) Immunofloresent reaction → primary stage
2) Immobilization → secondary till end.

Ulcers → after 21 days appear in genitalia.

4 to 8 weeks after infection Reagins antib[odies] starts to appear not after appearance of Ulcer.
Syphilitic Shanker (ulcer) → after 21 days
but VDRL Test (Reagins) appear after 4-8 week[s]

Immunoflorescent Abs reaction → very specific
appear at the appearance or even before Ulcer appear[ance]

(TPHA)
T.p heme agglutination Test → non specific

Treponemal Test → means we have antigen of T.p subspecies test either dead or alive
alive Nicholas Strain. If put serum contains Syphilis all are stops moving.

Non-trepanemal test → became non-trep. antigens but cardiolipid antigen.

Ulcer formation in primary stage consist of millions of T.p.

⊛ Testing of a syphilitic patient :-
not giving him spirit to sterlize the shancer but normal saline, to avoid killing the T.p., then looking the slide under dark feild microscopy

Specimen :- ((Scrapping from patients genital chancer.))

Secondary Stage :-

RPR → Rapid Plasma Reagins Test.
VDRL → Veineireal dease and registered laboratory tests.

1) (TPHA) Treponemal pall. indirect heme aggl. reaction → أفضل إختبار.
↓ T.p ثبتت by formaldehyde.
2) Kan's reaction.
3) Weither's man reaction.
4) RPR 5) VDRL.

more accurate than RPR & VDRL
came trepanel test.

T.p sub. pall. → highly sensitive to penecillin.

(*) (Primary Stage):- starts by appearance of Ulcers,

attacks arteries, bones, arthritis & peri arithritis then it deciminates into blood quickly..

page 29 ((Arthus reaction)) → Immuno complex deposition → action of complements:

Hypersensitivity reaction type III.

Polymorphological neutrophils migration → will make the bottom of the ulcer very hard, Arthritis, periarthritis will make it painless, pussless, round, red & Hard → characteristics of ((Chanker)) → Hard Chanker:

"Soap shanker" caused by "Heamophilis deokli" gram (-) cocco baccillus

Vinereal Ulcer → Shanker

4 - 8 weeks after appearance of Shanker → Secondary stage → ((page 30))

In Arthus Reaction → main mediators :- IgM & IgG, other mediators eosonophil, neutrophil, Inflammatory factors, complement

In {Sec. Stage} → highly infectious body rashes ... page (8)

In primary Syphilis ((Ulcers)) what's your laboratory diagnoses?

1) 3 weeks after infection chancer appears.
2) Reagins (IgG- IgM antibodies) directed against lipid material found in body of Syphilitic patient & not against Trep. pallidum, which appears 4-8 weeks after infection..

3) Standard Serological tests (VDRL, wesiher's mann, RPR, Kan's test) are positive only after 4-8 weeks → non-Specific against T. pallidum.

4) → The Immuno flourocent T. pall. antibodies (Abs) & → T.P Immobilization reaction test. } ((highly confirmatory)) (+) at primary stage..

⊕ Exception: - In Old persons, lipid materials are formed in patients body but this doesn't mean he has syphilis.

To diagnose old persons by → 1) Clinical picture
2) Immuno fl. (Abs) & Immobilization Test test.

1 drop of lipid antigen, from bottle + 1 drop of serum. of one

lipid material Antigenic structure resembles the antigenic structure of lipid found in normal pregnant women & other infectious disease

* Steps of taking specimen & testing a Syphilitic patient in laboratory:-

① Give the patient a cotton of normal saline to sterile the area of chancre (Ulcer)

Note:- Avoid giving a spirit cotton, cause spirit will kill the T.pall. found on Ulcers.

② Wear double gloves on both hands.
③ Through the loop of the testing wire take specimen from chancre very carefully & place it onto the slide.

Note:- the cottons from the patients should be thrown in an aluminium bucket, so that it could be placed in an (Autoclave) to kill all the bacteria.

(4) finaly Give the patient a cotton of spirit ((70% ethanol)) to Sterile the area of chanker & his hands..

(5) Take the bucket to Autoclave for half an hour.

(6) See the slide under ((dark feild microscopy)) queens, very nice movement of T.p.

appearens few days after infection.

(7) DO, → Imm. flow. T.p. antibodies (Abs) Test. } → for confirmatory
→ T.p Immobilization test.

Before it we have already done Reitherstrain Test.

If patient is syphilitic his serum contains → Immunoflourecent antibodies +

From Testes of rabbit. after killing by heat ← Nicholar strain of T.p. (act as antigens). attach with antibodies.

(*) Note :- This is a highly infectious Test.

Imm. flo. T.p. Abs & Immobilization → appears even before appearence of ulcer.

Dead T.p seen by → Immunoflourecent microscopy
Alive T.p seen by → Dark feild microscopy. (forward, backwards move.).

Monkey

thaw the slide in ___? flouride solution or in auto clave...

(T.p Immobilizing antibodies)

(Treponemal Tests for syphilis) → Immobilizat... (highly specific). → Immuno fluore...

in 3-12 months

patients may pass through primary & secondary stages without having clear / significant sign of syphilis, chancer disappear & body rashes too disappear if untreated → & the disease goes to the latent stage... page (9) : detection accide... by tests..

(*) No symptoms of syphilis ; what to do in this case ?! (1) Trep. pallidum immobilizing test. (+) & then depending on differential diagnoses...
(2)

Imp. ← "Prozone Reaction" (page 13)
—x—x—x—
.. مهم جدا الشرح

very imp. reaction in {Brucellosis} & {Syphilis}

Cardiolipid antigen + incomplete antibody in patients serum
which has normal attraction to the antigens
anticardiolipin antibody

the incomplete antibodies will travel very fast & block all the determinants of antigens.
Then the complete antibodies can't bind to the reaction. → (−) negative reaction.

((Antigenic determinants)) :- ① very very high velocity
② Non-glutinating antibodies.
③ Non-precipitating ".
④ Non-complement fixing a.b.
⑤ Non-Toxin-anti toxin-neutralization reaction.

↓ Comp. antibod. يمنع in attachment.

that's why (−) reaction.

Dilution :- 1 in 1 (−), 1 in 2 (−), 1 in 4 (−), 1 in 8 (+) → diluted serum, the incomplete antibodies has finished because they are few in no. in comparison to the complete a.b.

1 in 1 ← undiluted serum

The complete antibodies has attached to the antigen & resulted in (+) reaction. ← comparison to the complete a.b.

(*) This is called ((Prozone phenomenon))
→ The antigens are present الأضداد الخفية but can't appear due to the incomplete antibodies.

((Brucella medinensis, B. abortus, B. Sui's.))
(الزوغة مسالماعز) — من البقر — من الخنزير

↓

Wright's reaction → may occur Prozone ~~reaction~~ Phenomenon.

((Pencillin Sensitive)) :-

Strep. pyogenes, Strep. agalacti, Viridant Streptococ Bacillus Anthrasis, Neisseria meningitidis, Clostridium, diphtere, Hemophilis influenze, Corynebac diphtheria

Strep. pneomonie.

VDRL Titre for seeing the effectiveness of pencilline ((Treatment progress)).

page (9)-(10) {Tertiary stage} :- (1) Neurosyph

(2) Cardiovascular syphilis (3) late benign syphilis.

(*) Note:- The only desease leading to disease is syphilis.

CSF reaction (+), treponemal & non-trep. test are (+). (very rarely reached to this stage)).

Congenital syphilis → preventable, for every pregnant women having VDRL (+) women, Start giving her pencillin treatment.

Highly resistant to pencillin :-

Staph Aureus, Enterococcus faecalis, all Entero bacteriace
((by plasmid conjugation))

In tertiary Stage :- The highly confirmatory test immobilization test or by treponemal-p heme agglutination reaction or by clinical picture & standard Serological test.

for more confirmation ((detect + pall. antibodies against antigens)).

END. —x —x —x ——

"Mirfat AL-Geelani"

"Group (A) - (8)"

first:- according to 1) S. typhi.
2) S. cholesuis
3)

3 classification
antibodies required
(more confirmation detect of full antigen).

multiple flagella in both poles.

① Monotrichous.
② Locotrichous
③ Amphotrichous
in both poles.

The 7 most imp. species:-
S. major 4
S. typhomeure.
S. Cholera suis.
S. Enteritidis.

DNA Hyberdization
double strand.

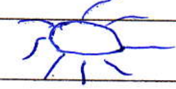
① Classification by DNA hyberdization.

eg:- S ?

O = 6.7, flagellated, flagellar → phase I
→ phase II

"(6.7, Vi : gd : 8,5)" numbers
capsulated letters

(Shigella & Salmonella) seminar

	Shigella	Salmonela.
① Habitat	large intestine of Human, primates.	① human, animal & animal product & some vegetables. ↓ by contamination.
② Morphology.	Non-motile.	② active motile by peritricheous flagella. all the surrounding 
③ production of H_2S	Non.	③ positive
④ Infective dose.	less	④ more
⑤ Classification	Somatic & Biochemical reaction	Somatic O, flagellar H & capsular K (Vi) → Kauffman-White

Mycobacterium

leprosy → by air borne infections.
(from person to person)

Atypical mycobact → from environment, du[st]
soil, sea.

tuberculosis → person to person.

(*) Mycobact. can infect skin, wounds.

(1) leprosy & syphilis → Bacteria which can't be cultivated

(2) Mean generation time My. tuberculosis → (18 hours)
culture must be read (visible colonies) after 1 m[onth]

(3) Trep. pallidum → Mean g. time (49 hours).
↓ can't be cultivated. ↓ medici[ne] dr[i]er after seve[ral] h[ours]

(4) Myco. lepri → MGT → 72 hours
effect nerve cells.

Myco. tuber. → genia pig. (cultivation).

Zeihl nelson stain. → AFB seen or not seen
poorly stained with gram stain due to it
~~capsule~~ lipid layer.) Ginger violet can't penetrate the lipid layer
↓
very strong + heating.

1) Mycobact. lepri
2) Mycobact. tuberculosis.
2) Myco. Atypical.

(*) Schistusoma Entercalatum →

L.J media → inoculation Acid fast bacilli. (Red).

(*) Acid fast bacilli → only lepry.
the remaining → Acid- Alcohol - fast bacilli.

PCR + Blood culture → confirmatory Test:. for specific because Swab isn't specific

Milk → ((Salmonella typhi, S. para A, B. C. Myco. bovis, Myco. tuberc. + Brucella))
transmitted by milk.
((pasteurization to kill bacteria))

((Rapid- latex -Slide agglutination reaction)) from uncentrifuged CFS.

⊕ DIC → inappropriate clotting of blood in blood vessels.

Water-house friedl. synd. → Fulminant meningococcemia, or hemorrhagic adrenalitis
↓
adrenal gland failure due to bleeding into adrenal gland.

((Paradox effect →
: effect of medical treatment (drug) opp. to the effect which would normally be expected.))

(Epi's)

N. gonorrhea:-

Mode of infect. in case of meningitis → ((pure human air-droplets))

" " gonorrhea → ((pure human sexually trans. disease))

((Permanent irreversable blindness)) during del. through birth canal from infect mother to fetus.

To diff. between N. gonorrhea & other commensals (Veillonella):-

Gram stain → gram(-) diplococci seen
but to diff.: culture in Makongi agar, blood agar aerobically
+ plain agar, chocolate agar + cenette jar, anaerobically
if no growth on chocolate agar → means not N. g.
if growth on blood agar anaerobically → Veillonella.
((PCR + DNA probe)) → golden Test.

+ But if grow of gram(-) dipplococci in chocolate agar, blood agar aerobically, makongi agar, plain agar → Non path.
but blood agar anaerobically → No

Plain agar → NaCl + meat extract + Lipton + agar

no growth factor, so if growth of g(-) dip. means commensals.

N.S.U → ((chlamydia trachomatis))

diff. in Urination with nightly @ Urethral discharge

Urethral swab for urgent 5 min. gram stain

very large no. of pus cells seen only.

no g(-) dip. → means N.S.U

caused by chlamydia → act as virus :- coz can't be grown on ordinary but we & can't be stained by ordinary stain. only grow on chicken embryo

act as bact. :- can be treated by Tetracyclin.

finally → do Oxidase test. by putting Oxidase paper on culture.

Blood agar + Makeney.

N. meningitidis :- CSF → ① culture in first chocolate agar + candle jar
→ gram staining
→ Sugar test.
→ Ordinary microscopical examination

①
CSF centrifugation form sediment of CSF sediment.
prepare for gram stain look for large no. of pus cell + large no. of g(-) diplococci intra & extra. → Urgent 5 min. telephone answer.

of CSF sediment.
② Ordinary wet microscopical preparation without stain → large no. of pus cells with moderate R.B.C, because normally CSF sterile.
↓
5-10 min telephone answer.

~~③ Culture.~~ (RLSAR with 3 cap. anti: (-) mean viral)

③ 1000 CSF 3 drops on Slide
latex bottles with ~~capsular antigens~~ of N. me., S. pnem., (latex agg antibodies against N. m. capsular antigen)
latex particals with S. pn. ~~capsular antigen~~ →
mix it, shake it for 2 min & look for agglutination → Rapid latex slide aggl. reaction (+) for N. meny.
↓
The 3rd urgent telephone answer

Microbiology sect → gram (previous)
Biochemistry → protein & glucose content of
Section. CSF

⊛ Mycobacterium Tuberculosis,–

(Classical leprosy bacillus → M. Leprae)
& also M. lepraemurium.

1) M. tuberc. → human strain by Air-born infection.

2) M. bovis → bovin strain → from infected cow unpasteurized milk

→ typical M. because infect guinea pig all the organs.

(both of them can infect any organ)

which don't infect guinea pig → Atypical
1) M. Kansasi
2) M. Avuiorum (الطيور)
3) M. Entercelulerris
4) M. furtuitum.

→ Cause Mycobacteriosis. Clinically & radiological idententical to tuberculosis.

← highly resistant to Antitb & Antibiotics

leprosy → also by Air-borne infect. when contact for years.

Atypical → not person to person but from sea, dust soil.. environment.

also infect skin, wounds..

Tuberculosis — Trep. pallidum = 49 hours

leprosy, syphilis → can't be cultivated

M.G.T = ~~18~~ 72 hours → 2 cells after

M.G.T = 20 min of Strep. pyog...
after 20 min 2 cells → 4 after 20 → 8 etc

Lonsen jounson medium (culture) → reading after 1 mo because M.G.T 18.

~~Tre~~

M.G.T ⇒ T.B → 18 hours.
lepro. → 72 " , Syph. → 49 h

9 banded armidulo → lep.
Testis of Rabbit → Syph.
Lonsen jounson culture & Guinea pig → T.B.

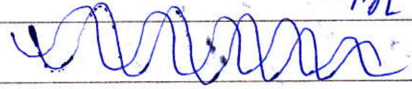
Tuberc → Zeihl - Nelson stain
((AFB are seen or not seen))
↓
poorly stained with gram-stain → very strong lipid memb. — ginger violet of gram can't enter.

1) faseilitate entering of ginger violet by heating the lipid layer
2) Carboxfoxin & heating
Count 5 min.
(all bact stained with Red colour)
& also Myco but very diff.

3) decolorizer (HCl + Ethanol) takes red colour from all bact. except :- 1) M. tub. 2) M. bovis
3) Atyp. Myco.
4) M. leprae
fungi ← 5) Nocardiose Solamien.
sis
& bact. 6) Schistosoma
↙ entercalatum
(parasite).

1) One of leading cause of death among HIV
2) BCG very imp. for immunity & to protect against germ (Miliary) ← generalized T.B & make it localized
(3 months) newborn. to prevent T.B menigitis.

Inoculation of highly virulent strains in L-J medium → AFB red in colour, but if the are found → Microbac arranged in sarpentine form. halon dermycolats (highly virulent).



M. Kansasi, (fortouitum), Entercellularis, Ulcerans
highly virulent

caused pneumonia in female in brazil, didt fond any antibiotic

M. Aqui → from tap water
M. Segmatus → Male & female genital tract } → Commensals

Atypical micro can't be diff from typical
typical (Bovis & TB.) all are AAFB.

But leprae → Acid, fast bacilli AFB

How to differentiate ?? → 1) from Culture LJ med (after 1 month)
((By Zeihl neelsen no diff.)) 2) Swab for PCR or DNA probe (confirmatory).

(*) Bacteria transmitted through milk :—
((Brucelli, Salmonella typhi, S. paratyphi A, B, C
M. Bovis, M. tuber))

primary Infect. → depending on clinical pic. because not have conf. test → giving treatment dramatic change.

(*) Koch's phenomenon →
Koch's discovered tuberculin test
later injected person S/C on his arm →
but then person got immunity. Necrosis
when injected again Ulcer but with heal
Calmit & geurin → BCG vaccine from this phenomenon
↓
Attenuating strain after 285 growth) in LJ med
avirulent giving highly solid immunity ←

(3ml)

CSF → 1) lumber puncture (3 times with iodine 3 times with 70% ethanol) cleaning.

2) 1 - 1.5 ml for (bacteriology)

3) 2-ml (hematology) & (biochemistry)

(general)

1) diff. blood count no. of W.B.C.. (uncentrifuged CSF)

2) glucose & albumin level

after centrifug.

3) Rapid slide latex agglut. reaction. (Uncentrifuged CSF).

* Uncentrifuged CSF → 1) only detect no. of cells.

2) glucose & albumin.

3) RLSA.

Centrifugeat form sediment → diff. count.

→ gram stain

→ Z-Neilson stain

→ culture in chocolate LJ media.

* (Sensitivity → by serial dilution of A.biotics in test tube)

((0.5, 0.1, 1 gram)) → in 3 Test tubes. of INH

then addition of M.tub.

If no growth in the 3 test tubes means M.tub could be prevented by INH in it's lowest dilution but if 0.5 & 0.1 growth & 1 no growth → INH must be used in it's highest dilution.

① (*) AFB - M. lep. (Test).

Ear lope steriled then cut making wound through scalpel → to slide drop.

② Nasal swab from nasal septum on slide

③ Elbow skin steriled & then cutting wound slide.

Stain them with Z-N stain, take care with concentration of HCl & absolute ethanol. See under microscope AFB arranged in bundles (red colour).

Koch's Bacillus → M. Bovis, M.T.

Hansen's " → M. leprae

—x—x—x—